

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Attorney Robert P. Lord on 5/28/2009.

3. The application has been amended as follows:

At Claim 49, line 1, please insert

--A computer readable storage medium...

AMENDMENTS TO THE SPECIFICATION

4. Please amend the originally-filed specification as follows.

On page 4, please replace the paragraph beginning at line 27 with the following paragraph:

Garbage-collection mechanisms can be implemented by various parts and levels of a computing system. One approach is simply to provide them as part of a batch compiler's output. Consider Fig. 2's simple batch-compiler operation, for example. A

Art Unit: 2165

computer system executes in accordance with compiler object code and therefore acts as a compiler 20. The compiler object code is typically stored on a medium such as Fig. 1's system disk 17 or some other machine-readable medium, and it is loaded into RAM 14 to configure the computer system to act as a compiler. In some cases, though, the compilers object code's persistent storage may instead be provided in a server system remote from the machine that performs the compiling. ~~The electrical signals that carry the digital data by which the computer systems exchange that code are examples of the kinds of electromagnetic signals by which the computer instructions can be communicated. Others are radio waves, microwaves, and both visible and invisible light.~~

On page 6, please replace the paragraph beginning at line 7 with the following paragraph: -- Most typically, the class files' byte-code routines are executed by a processor under control of a virtual-machine process 27. That process emulates a virtual machine from whose instruction set the byte codes are drawn. As is true of the compiler 23, the virtual-machine process 27 may be specified by code stored on a local disk or some other machine-readable medium from which it is read into Fig. 1's RAM 14 to configure the computer system to implement the garbage collector and otherwise act as a virtual machine. Again, though, that code's persistent storage may instead be provided by a server system remote from the processor that implements the virtual machine, ~~in which case the code would be transmitted electrically or optically to the virtual machine implementing processor.~~

Examiner Remarks

5. As discussed within the telephone conversation on 5/28/2009, Attorney Lord clearly disavows the deleted subject matter filed in the Specification amendment filed on 4/7/2009. Therefore, the “computer readable medium” includes only statutory physical storage devices under 35 USC 101.

Allowable Subject Matter

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.

Claims 41-57 are allowed.

Reasons for Allowance

7. The following is an examiner's statement of reasons for allowance:

Prior art of record does not render obvious, nor anticipate the combination of claimed elements including the technique of *“obtaining a collection set of objects in a computer system, wherein the collection set is associated with a collector interval of a collection cycle; partitioning the collection set of objects into a plurality of sections, wherein a section of the plurality of sections corresponds to memory of the computer system and is associated with a remembered set; partitioning the section into a plurality of segments, wherein a first segment of the plurality of segments corresponds to a*

Art Unit: 2165

portion of the memory of the computer system; obtaining a first count-map for the section, wherein the first count-map is associated with a first thread executing on a processor of the computer system, and wherein a first entry in the first count-map is associated with the first segment of the plurality of segments; identifying a first plurality of references to objects in the first segment using the remembered set; incrementing the first entry based on a size of the first plurality of references; comparing the first entry with a popular-object threshold to generate a first comparison; and evacuating a first object from the first segment based on the first comparison to reclaim the portion of the memory of the computer system for reuse” as recited in claim 41. Thus, Claim 41 is allowed. Dependent claims 42-48 are allowed at least by virtue of their dependencies from Claim 41, as well as Independent Claims 49 & 57 and their dependencies.

The primary reason for the allowance of the claims in this case is the inclusion of *“...partitioning the collection set of objects into a plurality of sections, wherein a section of the plurality of sections corresponds to memory of the computer system and is associated with a remembered set; partitioning the section into a plurality of segments, wherein a first segment of the plurality of segments corresponds to a portion of the memory of the computer system; and comparing the first entry with a popular-object threshold to generate a first comparison”* which is not found in the prior art of records.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAHEEM HOFFLER whose telephone number is (571)270-1036. The examiner can normally be reached on 7:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Neveen Abel-Jalil can be reached on (571) 272-4074. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. H./
Examiner, Art Unit 2165
September 2, 2009

/Naveen Abel-Jalil/

Supervisory Patent Examiner, Art Unit 2165